



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of:

Mutsuo Nishi et al.:

Serial No. 09/824,251:

Filed on April 03, 2001:

For: POROUS POLYESTER FILM:

Examiner: Victor S Chang

Group Art Unit: 1771

DECLARATION UNDER 37 CFR 1,132

Honorable Commissioner of
Patents and Trademarks,
Washington, D.C. 20231

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TC 1700

Sir:

I, Dr. Mutsuo Nishi, declare that I am a citizen of Japan, whose post office address is c/o Toyo Boseki Kabushiki Kaisha, Films Research and Development Center Tsuruga Films Center, 10-24, Toyo-cho, Tsuruga-shi, Fukui 914-0047 Japan;

That my education and employment history is as follows:

In March 1998, I graduated from graduate school, Biosphere Science, Hiroshima University in Hiroshima, Japan,

I was employed by Toyo Boseki Kabushiki Kaisha in April 1998, and have been engaged in the research and development of various functions afforded by porous polyester films;

That I am an inventor of the above-identified U.S. patent application SN 09/824,251 and have fully understood the subject matter of the above-identified U.S. patent application SN 09/824,251 and the subject matter of the cited reference, Sasaki et al.;

That I conducted the following experiment to establish that the effect of the present invention could not be expected from Sasaki et al.;

That the following demonstrates such fact:

Experiment 1

Sasaki et al. (US6,096,684) has been filed in the name of the same Applicants as the present application, and therefore, film samples described in Examples 1-12 of Sasaki et al. and the starting materials used for producing the film samples were preserved. Using the samples, and according to the method described in the present specification at page 23, line 34 to page

24, line 12, the ratio of the number of voids to film thickness (voids/ μm) of the films were measured. In addition, the melt viscosity (η_0 , η_s) of polyolefin resin and polystyrene resin used as the starting materials, which are thermoplastic resin incompatible with polyester resin, was measured according to the method described in the present specification at page 23, lines 16 to 30, and the ratio (η_0/η_s) thereof was determined. The results are shown in the following Table 1.

Table 1

US6,096,684	film forming conditions		film properties	
	η_0/η_s	Mixer	specific gravity	ratio of number of voids to film thickness (void/ μm)
Ex.1	0.81	None	0.96	0.18
Ex.2	0.81	None	0.98	0.18
Ex.3	0.81	None	0.93	0.19
Ex.4	0.81	None	0.93	0.19
Ex.5	0.81	None	0.95	0.18
Ex.6	0.81	None	0.92	0.19
Ex.7	0.81	None	1.00	0.17
Ex.8	0.81	None	1.11	0.16
Ex.9	0.81	None	0.94	0.19
Ex.10	0.81	None	0.98	0.18
Ex.11	0.81	None	0.92	0.19
Ex.12	0.81	None	0.93	0.19

In Table 1, by the Mixer being none in the film forming conditions is meant that a mixture of polyester resin pellets and thermoplastic resin pellets incompatible with polyester resin was naturally mixed with the starting material by air transfer without using a mixer.

Experiment 2

The films of Examples 9 and 6 of Sasaki et al. were measured for the spectral reflectance according to the method described in

the present specification at page 36, lines 2-15, and the reflectivity of the films was evaluated. The results are shown in the following Table 2. In Table 2, the film forming conditions and film properties of the films of Examples 9 and 6 of Sasaki et al., and the film forming conditions, film properties and reflectivity of the films of Examples 6-8 of the present application are shown.

Experiment 3

The films of Examples 6 and 8 of Sasaki et al. were measured for the handling property according to the method described in the present specification at page 25, lines 28-35. The results are shown in the following Table 3. In Table 3, the film forming conditions and film properties of the films of Examples 6 and 8 of Sasaki et al., and the film forming conditions, film properties and handling property of the films of Examples 1 and 2 of the present application are shown.

※ In Tables 2 and 3, "pt" in the film forming conditions is the "pt" in the formula (III) defined in the present specification, and shows the content (wt%) of resin film in a void-containing polyester layer (A layer), which is incompatible with polyester resin, to the entire weight of the film.

Table 2

		Film forming conditions				Film properties		reflectivity
		η_0/η_s	Pt	mixer	Layer constitution	Specific gravity	Ratio of number of voids to film thickness (void/ μm)	
present invention	Ex. 6	0.33	9	none	1 layer	1.05	0.34	103
	Ex. 7	0.33	14	none	1 layer	0.89	0.37	104
	Ex. 8	0.33	9	used	3 layers	1.10	0.26	101
US6,096,684	Ex. 9	0.81	13	none	1 layer	0.94	0.19	94
	Ex. 6	0.81	10	none	3 layers	0.92	0.19	92

Table 3

		Film forming conditions				Film properties		Handling property
		η_0/η_s	Pt	mixer	Layer constitution	Specific gravity	Ratio of number of voids to film thickness (void/ μm)	
present invention	Ex. 1	0.33	7	used	3 layers	1.08	0.31	○
	Ex. 2	0.33	7	used	3 layers	1.11	0.22	△
US6,096,684	Ex. 6	0.81	10	none	3 layers	0.92	0.19	×
	Ex. 8	0.81	7	none	2 layers	1.11	0.16	×

Discussion

As shown in Table 1, the ratio of the number of voids to the film thickness (void/ μm) of the void-containing polyester film disclosed in Examples of Sasaki et al. was smaller than the "not less than 0.2 void/ μm " defined in the present application. In addition, the results in Tables 2 and 3 reveal that the void-containing polyester film of the present invention is superior to the void-containing polyester film disclosed in Sasaki et al. in the reflectivity of the films and handling property.

That I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at Shiga, Japan, this 9th day of June, 2003

Mutsuo Nishi

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Mutsuo Nishi